



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
17.01.2018 Bulletin 2018/03

(51) Int Cl.:
C23F 13/14 ^(2006.01) **C23F 13/00** ^(2006.01)
C23F 13/06 ^(2006.01) **C09D 5/00** ^(2006.01)

(43) Date of publication A2:
13.12.2017 Bulletin 2017/50

(21) Application number: **17174498.0**

(22) Date of filing: **06.06.2017**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
MA MD

- **Zafiris, Georgios S.**
Glastonbury, CT Connecticut 06033 (US)
- **Zhang, Weilong**
Glastonbury, CT Connecticut 06033 (US)
- **Kryzman, Michael A.**
West Hartford, CT Connecticut 06107 (US)
- **Fotache, Catalin G.**
West Hartford, CT Connecticut 06117 (US)
- **Jaworowski, Mark R.**
Glastonbury, CT Connecticut 06033 (US)

(30) Priority: **06.06.2016 US 201615174098**

(71) Applicant: **United Technologies Corporation**
Farmington, CT 06032 (US)

(74) Representative: **de Bresser, Sara Jean**
Dehns
St Bride's House
10 Salisbury Square
London EC4Y 8JD (GB)

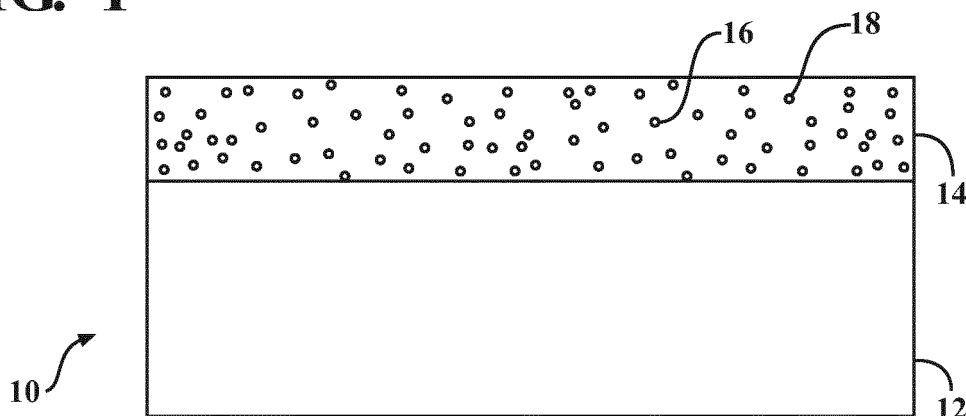
(72) Inventors:
• **Ding, Zhongfen (Vivian)**
South Windsor, CT Connecticut 06074 (US)

(54) **CORROSION INHIBITING ADDITIVE**

(57) A corrosion resistant article including an aluminum substrate and a corrosion-inhibiting cerium based corrosion inhibitor corrosion inhibiting additive on the aluminum substrate, the corrosion inhibiting additive com-

prising an anodic corrosion inhibitor and a cathodic corrosion inhibitor, the anodic corrosion inhibitor greater than 25 wt % of the total inhibitor.

FIG. 1





EUROPEAN SEARCH REPORT

Application Number
EP 17 17 4498

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	CN 101 481 510 A (ZHONG DING [CN]) 15 July 2009 (2009-07-15)	1-10, 12-15	INV. C23F13/14
Y	* the whole document *	11	C23F13/00 C23F13/06 C09D5/00
X	EP 2 011 899 A2 (UNITED TECHNOLOGIES CORP [US]) 7 January 2009 (2009-01-07)	1-10, 12-15	
Y	* abstract; claims 1, 8, 10, 13, 17; figures 1-2 * * paragraph [0015] - paragraph [0019] *	11	
Y	WO 2015/001461 A1 (INST STEFAN JOSEF [SI]) 8 January 2015 (2015-01-08)	11	
	* abstract * * page 3, line 4 - line 7 *		
A	US 2009/117369 A1 (JAWOROWSKI MARK R [US] ET AL) 7 May 2009 (2009-05-07)	1-15	
	* the whole document *		
A	EP 1 493 846 A1 (UNITED TECHNOLOGIES CORP [US]) 5 January 2005 (2005-01-05)	1-15	TECHNICAL FIELDS SEARCHED (IPC)
	* the whole document *		C23F C09D
A	EP 1 842 881 A1 (UNITED TECHNOLOGIES CORP [US]) 10 October 2007 (2007-10-10)	1-15	
	* the whole document *		
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 November 2017	Examiner Leu, Oana
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 17 17 4498

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

10-11-2017

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 101481510 A	15-07-2009	NONE	
EP 2011899 A2	07-01-2009	BR PI0802159 A2 CA 2635818 A1 CN 101333659 A EP 2011899 A2 US 2009004486 A1 US 2014212354 A1	14-07-2009 27-12-2008 31-12-2008 07-01-2009 01-01-2009 31-07-2014
WO 2015001461 A1	08-01-2015	NONE	
US 2009117369 A1	07-05-2009	US 2009117369 A1 US 2015376419 A1	07-05-2009 31-12-2015
EP 1493846 A1	05-01-2005	AT 557113 T CA 2472562 A1 CN 1576324 A EP 1493846 A1 ES 2385981 T3 MX PA04006377 A PL 368848 A1 SG 118292 A1 TW 200506019 A US 2004262580 A1	15-05-2012 30-12-2004 09-02-2005 05-01-2005 06-08-2012 31-03-2005 10-01-2005 27-01-2006 16-02-2005 30-12-2004
EP 1842881 A1	10-10-2007	CN 101050322 A EP 1842881 A1 JP 2007277551 A KR 20070099409 A SG 136027 A1 US 2007228332 A1	10-10-2007 10-10-2007 25-10-2007 09-10-2007 29-10-2007 04-10-2007